

## Refine Search

### Search Results -

Term	Documents
"5438401"	12
5438401S	0
("5438401" AND 11).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2
(L11 AND 5438401).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2

Database:

US Pre-Grant Publication Full-Text Database  
 US Patents Full-Text Database  
 US OCR Full-Text Database  
 EPO Abstracts Database  
 JPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

Search:

L20

Refine Search

Recall Text



Clear

Interrupt

### Search History

DATE: Friday, March 10, 2006   [Printable Copy](#)   [Create Case](#)

#### Set Name Query

side by side

#### Hit Count Set Name

result set

*DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ*

<u>L20</u>	L11 and 5438401	2	<u>L20</u>
<u>L19</u>	L11 and 5659843	2	<u>L19</u>
<u>L18</u>	L11 and 5623330	3	<u>L18</u>
<u>L17</u>	L11 and 6360065	2	<u>L17</u>
<u>L16</u>	L11 and 6519428	0	<u>L16</u>
<u>L15</u>	L11 and 6546219	4	<u>L15</u>
<u>L14</u>	L11 and 6505022	2	<u>L14</u>
<u>L13</u>	L11 and 6470161	5	<u>L13</u>
<u>L12</u>	L11 and (6470161 and 6505022)	0	<u>L12</u>

<u>L11</u>	L5 and (399/159,115,174,176,109,116,100,332,308).ccls.	1924	<u>L11</u>
<u>L10</u>	L5 and 6470161	7	<u>L10</u>
<u>L9</u>	US6470161.ccls.	0	<u>L9</u>
<u>L8</u>	6470161.ccls.	0	<u>L8</u>
<u>L7</u>	L5 and 6470161.ccls.	0	<u>L7</u>
<u>L6</u>	L5 and 10943950.ccls.	0	<u>L6</u>
<u>L5</u>	((imag\$4 with form\$4) with (apparatus or machine))	182001	<u>L5</u>
<u>L4</u>	(10789382 or 1094950).ccls.	0	<u>L4</u>
<u>L3</u>	10789382.ccls. or 1094950.ccls.	0	<u>L3</u>
<u>L2</u>	10943950	0	<u>L2</u>
<u>L1</u>	10789382 and 10943950	0	<u>L1</u>

END OF SEARCH HISTORY

## The Contents of Case 798\_382\_10

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Qnum	Query	DB Name
Q1	10789382 and 10943950	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q2	10943950	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q3	10789382.ccls. or 1094950.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q4	(10789382 or 1094950).ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q5	((imag\$4 with form\$4) with (apparatus or machine))	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q6	Q5 and 10943950.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q7	Q5 and 6470161.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q8	6470161.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q9	US6470161.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q10	Q5 and 6470161	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q11	Q5 and (399/159,115,174,176,109,116,100,332,308).ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q12	Q11 and (6470161 and 6505022)	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q13	Q11 and 6470161	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q14	Q11 and 6505022	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q15	Q11 and 6546219	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q16	Q11 and 6519428	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q17	Q11 and 6360065	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q18	Q11 and 5623330	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q19	Q11 and 5659843	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD
Q20	Q11 and 5438401	PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD

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### Case Operation

## Hit List

[First Hit](#)[Clear](#)[Generate Collection](#)[Print](#)[Fwd Refs](#)[Bkwd Refs](#)[Generate OACS](#)

Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1. Document ID: US 6898407 B2      Relevance Rank: 72

Using default format because multiple data bases are involved.

L10: Entry 2 of 7

File: USPT

May 24, 2005

US-PAT-NO: 6898407

DOCUMENT-IDENTIFIER: US 6898407 B2

TITLE: Desktop color image forming apparatus and method of making the same

DATE-ISSUED: May 24, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Noguchi; Yuusuke	Kanagawa-ken			JP
Ema; Hiromichi	Tokyo			JP
Ishii; Hiroshi	Kanagawa-ken			JP
Fukuchi; Yutaka	Kanagawa-ken			JP
Kuma; Kazuosa	Kanagawa-ken			JP
Suzuki; Kazuki	Saitama-ken			JP
Kikura; Makoto	Kanagawa-ken			JP
Sato; Masumi	Kanagawa-ken			JP
Shijo; Hiroyasu	Tokyo			JP
Nakahara; Tomotoshi	Kanagawa-ken			JP
Yasui; Motokazu	Kanagawa-ken			JP

US-CL-CURRENT: 399/302; 399/308

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	Notes	Drawings
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☐ 2. Document ID: US 7010246 B2      Relevance Rank: 72

L10: Entry 1 of 7

File: USPT

Mar 7, 2006

US-PAT-NO: 7010246

DOCUMENT-IDENTIFIER: US 7010246 B2

TITLE: Image forming apparatus, drum unit, image forming module, and method of insertion and removal of a damper into and from an image carrier drum

DATE-ISSUED: March 7, 2006

PRIOR-PUBLICATION:

DOC-ID	DATE
US 20040042822 A1	March 4, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fujishiro; Takatsugu	Tokyo			JP
Suda; Takeo	Tokyo			JP
Zemba; Hideki	Tokyo			JP
Murayama; Hisao	Tokyo			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/456583 [PALM]  
DATE FILED: June 9, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-169218	June 10, 2002
JP	2002-170655	June 11, 2002
JP	2002-181552	June 21, 2002
JP	2002-195224	July 3, 2002
JP	2003-113709	April 18, 2003

INT-CL-ISSUED:

TYPE	IPC	DATE	IPC-OLD
IPCP	G03G15/00	20060101	G03G015/00

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	<u>G03 G 15/00</u>	20060101

US-CL-ISSUED: 399/159; 399/109, 399/116, 464/180  
US-CL-CURRENT: 399/159; 399/109, 399/116, 464/180

FIELD-OF-CLASSIFICATION-SEARCH: 399/159, 399/116, 399/117, 399/109, 399/107, 399/110, 29/895, 29/895.1, 29/402.03, 464/179, 464/180, 464/182, 492/18, 492/47  
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5357231</u>	October 1994	Miwa et al.	399/159 X

<u>6010407</u>	January 2000	Ishikawa	464/180 X
<u>6055394</u>	April 2000	Suda et al.	399/107
<u>6070030</u>	May 2000	Fujishiro	399/111
<u>6085062</u>	July 2000	Mizuishi et al.	399/358
<u>6101351</u>	August 2000	Suda et al.	399/114
<u>6131003</u>	October 2000	Cais et al.	399/159 X
<u>6144811</u>	November 2000	Ohori et al.	399/9
<u>6144822</u>	November 2000	Yamaguchi et al.	399/121
<u>6148161</u>	November 2000	Usui et al.	399/58
<u>6256465</u>	July 2001	Yoshinaga et al.	399/103
<u>6266501</u>	July 2001	Mizuishi et al.	399/106
<u>6295438</u>	September 2001	Fujishiro et al.	399/346
<u>6336013</u>	January 2002	Suda et al.	399/103
<u>6463237</u>	October 2002	Suda et al.	399/176
<u>6470161</u>	October 2002	Fujishiro et al.	399/159
<u>6507720</u>	January 2003	Kabumoto et al.	399/258
<u>6546219</u>	April 2003	Sato et al.	399/176
<u>6560414</u>	May 2003	Suda et al.	399/12
<u>6567643</u>	May 2003	Yasui et al.	399/391
<u>6591077</u>	July 2003	Yanagisawa et al.	399/258
<u>6608981</u>	August 2003	Mae	399/116
<u>6782224</u>	August 2004	Kim	399/159
<u>2001/0012458</u>	August 2001	Fritz et al.	399/159 X
<u>2001/0020761</u>	September 2001	Hasegawa	267/141
<u>2002/0186985</u>	December 2002	Fujishiro	399/159 X

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
0 896 258	February 1999	EP	
1 260 875	November 2002	EP	
5-35167	February 1993	JP	
05-188840	July 1993	JP	
06-264970	September 1994	JP	
7-72641	March 1995	JP	
08-146824	June 1996	JP	
10-97158	April 1998	JP	
11-184308	July 1999	JP	
2000-321929	November 2000	JP	
2001-209236	August 2001	JP	
2003-066770	March 2003	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Chen; Sophia S.

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier &amp; Neustadt, P.C.

## ABSTRACT:

An image forming apparatus includes a photoreceptor belt formed by either a belt or a thin-walled cylinder. A charging unit that sets bias characteristics of the photoreceptor belt has an arrangement to approach towards the photoreceptor belt. A damper is provided on a side of the photoreceptor belt opposite to the side facing the charging unit. The damper absorbs vibrations in the photoreceptor belt through a supporting plate.

14 Claims, 47 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	INOC	Draw D.
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☐ 3. Document ID: US 6470161 B2      Relevance Rank: 69

L10: Entry 6 of 7

File: USPT

Oct 22, 2002

US-PAT-NO: 6470161

DOCUMENT-IDENTIFIER: US 6470161 B2

TITLE: Apparatus for minimizing toner contamination on an image formation member

DATE-ISSUED: October 22, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fujishiro; Takatsugu	Tokyo			JP
Hiramatsu; Masami	Yokohama			JP
Sato; Masumi	Yokohama			JP
Ishibashi; Hitoshi	Kamakura			JP
Yosinaga; Hiroshi	Ichikawa			JP
Iwasaki; Yukiko	Yokohama			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 09/826813    [PALM]

DATE FILED: April 6, 2001

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2000-106146	April 7, 2000
JP	2000-130049	April 28, 2000

INT-CL-ISSUED: [07] G03 G 15/00, G03 G 15/02

US-CL-ISSUED: 399/159; 399/115, 399/174, 399/176

US-CL-CURRENT: 399/159; 399/115, 399/174, 399/176

FIELD-OF-CLASSIFICATION-SEARCH: 399/115, 399/159, 399/160, 399/174, 399/175, 399/176

See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5799229</u>	August 1998	Yokoyama et al.	399/100
<u>5946529</u>	August 1999	Sato et al.	
<u>6088551</u>	July 2000	Satoh et al.	

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
3-240076	October 1991	JP	
4-360167	December 1992	JP	
6-230650	August 1994	JP	
7-121002	May 1995	JP	
9-26685	January 1997	JP	
9-138623	May 1997	JP	
10-340028	December 1998	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

ABSTRACT:

To prevent deterioration of charge performance, which is caused by wear of a gap control member that keeps a charge roller into non-contact with the image carrier, the charge roller is brought into contact with a surface of a photosensitive drum via a pair of tape members as the gap control member that contacts with a coat and non-charge portion of the photosensitive drum. A gap G can be formed between an effective charge width portion of the charge roller and the surface of the photosensitive drum.

26 Claims, 22 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	WAC	Draw
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☐ 4. Document ID: US 6807390 B2      Relevance Rank: 68



L10: Entry 4 of 7

File: USPT

Oct 19, 2004

US-PAT-NO: 6807390

DOCUMENT-IDENTIFIER: US 6807390 B2

TITLE: Image forming apparatus

DATE-ISSUED: October 19, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Suda; Takeo	Tokyo			JP
Kawahara; Shinichi	Tokyo			JP
Kawasumi; Masanori	Tokyo			JP
Amemiya; Ken	Tokyo			JP
Ono; Hiroshi	Tokyo			JP
Mizusawa; Hiroshi	Tokyo			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/405630 [PALM]

DATE FILED: April 3, 2003

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-110248	April 12, 2002

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/100

US-CL-CURRENT: 399/100

FIELD-OF-CLASSIFICATION-SEARCH: 399/100, 399/168, 399/174, 399/175, 399/176, 399/299, 399/302, 399/303

See application file for complete search history.

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5842081</u>	November 1998	Kaname et al.	
<u>5950062</u>	September 1999	Yahata et al.	
<u>6055388</u>	April 2000	Watanabe et al.	
<u>6055394</u>	April 2000	Suda et al.	
<u>6085062</u>	July 2000	Mizuishi et al.	
<u>6101351</u>	August 2000	Suda et al.	
<u>6128449</u>	October 2000	Zenba et al.	

<u>6144811</u>	November 2000	Ohori et al.	
<u>6144822</u>	November 2000	Yamaguchi et al.	
<u>6148161</u>	November 2000	Usui et al.	
<u>6160969</u>	December 2000	Ishigaki et al.	
<u>6256465</u>	July 2001	Yoshinaga et al.	
<u>6266501</u>	July 2001	Mizuishi et al.	
<u>6336013</u>	January 2002	Suda et al.	
<u>6337957</u>	January 2002	Tamaki et al.	
<u>6463237</u>	October 2002	Suda et al.	
<u>6470161</u>	October 2002	Fujishiro et al.	399/159
<u>6522855</u>	February 2003	Kato et al.	
<u>6560414</u>	May 2003	Suda et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
1 193 568	April 2002	EP	
1 229 399	August 2002	EP	
8-62949	March 1996	JP	
08-123140	May 1996	JP	
10-282854	October 1998	JP	
11-288150	October 1999	JP	
2000-221756	August 2000	JP	
2002-196568	July 2002	JP	
2002-221883	August 2002	JP	

## OTHER PUBLICATIONS

Patent Abstracts of Japan, JP 59-218479, Dec. 8, 1984.  
 Patent Abstracts of Japan, JP 2002-108069, Apr. 10, 2002.

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

## ABSTRACT:

An image forming apparatus includes a plurality of photoreceptors and an intermediated transfer body through which toner images on the photoreceptors are transferred to a recording medium. The image forming apparatus also includes charging members provided in contact with or adjacent to the respective photoreceptors, and further includes at least one cleaning unit that contacts the charging member and removes foreign substance from the surface of the charging member.

10 Claims, 4 Drawing figures

Full	Title	Chation	Front	Review	Classification	Date	Reference			Claims	FIG	Draw
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☐ 5. Document ID: US 6823149 B2 Relevance Rank: 68

L10: Entry 3 of 7

File: USPT

Nov 23, 2004

US-PAT-NO: 6823149

DOCUMENT-IDENTIFIER: US 6823149 B2

TITLE: Image forming apparatus with variable speed transferring and fixing devices

DATE-ISSUED: November 23, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yoshikawa; Takahiro	Kanagawa			JP
Maruta; Takayuki	Kanagawa			JP
Ishibashi; Hitoshi	Kanagawa			JP
Sawai; Yuuji	Kanagawa			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/373050 [PALM]

DATE FILED: February 26, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-054245	February 28, 2002

INT-CL-ISSUED: [07] G03 G 15/20

US-CL-ISSUED: 399/68; 399/400

US-CL-CURRENT: 399/68; 399/400

FIELD-OF-CLASSIFICATION-SEARCH: 399/68, 399/397, 399/400, 399/396, 399/16  
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4595279</u>	June 1986	Kuru et al.	
<u>4928141</u>	May 1990	Poehlein et al.	399/68
<u>4931842</u>	June 1990	Mahoney	399/400
<u>5669039</u>	September 1997	Ohtsuka et al.	399/68

<u>5850588</u>	December 1998	Yoshikawa
<u>5881334</u>	March 1999	Maruta et al.
<u>6055386</u>	April 2000	Kato et al.
<u>6160569</u>	December 2000	Fujimori et al.
<u>6160974</u>	December 2000	Yoshikawa et al.
<u>6226481</u>	May 2001	Yoneda et al.
<u>6301452</u>	October 2001	Yoshizawa
<u>6360065</u>	March 2002	Ishibashi et al.
<u>6405002</u>	June 2002	Ogiyama et al.
<u>6470161</u>	October 2002	Fujishiro et al.
<u>6501914</u>	December 2002	Yoshikawa
<u>6505022</u>	January 2003	Kosuge et al.
<u>6516179</u>	February 2003	Sawai et al.
<u>6519428</u>	February 2003	Ohtoshi et al.
<u>6535707</u>	March 2003	Maruta et al.
<u>6546219</u>	April 2003	Sato et al.

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
61059368	March 1986	JP	
07-140845	June 1995	JP	
10039558	February 1998	JP	
2915510	April 1999	JP	
11119573	April 1999	JP	
2001312193	November 2001	JP	
2001-354337	December 2001	JP	

## OTHER PUBLICATIONS

U.S. patent application Ser. No. 10/740,672, Kamiya, filed Dec. 22, 2003.  
 U.S. patent application Ser. No. 10/798,382, Ishibashi, filed Mar. 12, 2004.  
 U.S. patent application Ser. No. 10/746,060, Enoki et al., filed Dec. 29, 2003.  
 U.S. patent application Ser. No. 10/722,490, Ishibashi et al., filed Nov. 28, 2003.

U.S. patent application Ser. No. 10/700,486, Yoshida et al., filed Nov. 5, 2003.  
 U.S. patent application Ser. No. 09/758,192, Sato et al., filed Jan. 12, 2001.  
 U.S. patent application Ser. No. 09/764,261, Yoshikawa, filed Jan. 19, 2001.  
 U.S. patent application Ser. No. 09/947,391, Kawagoe et al., filed Sep. 7, 2001.  
 U.S. patent application Ser. No. 09/960,922, Aoki et al., filed Sep. 25, 2001.  
 U.S. patent application Ser. No. 10/114,265, Maruta et al., filed Apr. 3, 2002.  
 U.S. patent application Ser. No. 10/178,685, Sugino et al., filed Jun. 25, 2002.  
 U.S. patent application Ser. No. 10/193,219, Takahashi et al., filed Jul. 12, 2002.

U.S. patent application Ser. No. 10/193,240, Sawai, filed Jul. 12, 2002.  
 U.S. patent application Ser. No. 10/200,178, Tamiya et al., filed Jul. 23, 2002.  
 U.S. patent application Ser. No. 10/214,595, Sakamoto, filed Aug. 9, 2002.

ART-UNIT: 2852

PRIMARY-EXAMINER: Lee; Susan

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

ABSTRACT:

An image forming apparatus of the present invention includes an intermediate image transfer belt to which a toner image is to be transferred from an image carrier, an image transferring device for transferring the toner image from the intermediate image transfer belt to a sheet, and a fixing device for fixing the toner image on the sheet. When the length of the sheet in the direction of conveyance is smaller than a distance between the image transferring device and the fixing device, a matching circuit varies only the speeds of the image transferring device and fixing device, but does not vary the speed of a device that executes a step preceding the image transfer step. The matching device then sets an interval between consecutive sheets matching with the varied speeds of the image transferring device and fixing device, thereby matching opposite sides with respect to the image transfer step to each other as to the number of sheets to be conveyed.

5 Claims, 7 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	FOIAC	Draw D.
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☐ 6. Document ID: US 6757505 B2 Relevance Rank: 68

L10: Entry 5 of 7

File: USPT

Jun 29, 2004

US-PAT-NO: 6757505

DOCUMENT-IDENTIFIER: US 6757505 B2

TITLE: Image forming apparatus and cleaning device therefor

DATE-ISSUED: June 29, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Amemiya; Ken	Tokyo			JP
Iwasaki; Yukiko	Yokohama			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/233530 [PALM]

DATE FILED: September 4, 2002

PARENT-CASE:

The present application is a continuation-in-part of copending U.S. patent application Ser. No. 10/053,542, filed Jan. 24, 2002.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2001-017150	January 25, 2001
JP	2001-268095	September 4, 2001

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/100; 399/123, 399/343, 399/353, 399/357

US-CL-CURRENT: 399/100; 399/123, 399/343, 399/353, 399/357

FIELD-OF-CLASSIFICATION-SEARCH: 15/1.51, 15/256.5, 15/256.51, 15/256.52, 399/100, 399/123, 399/343, 399/345, 399/347, 399/352, 399/353, 399/357, 399/358, 399/359, 399/360

See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5689791</u>	November 1997	Swift	399/353
<u>6470161</u>	October 2002	Fujishiro et al.	

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
8-022173	January 1996	JP	
10-020696	January 1998	JP	
10-282854	October 1998	JP	
11-219048	August 1999	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

ABSTRACT:

A cleaning device of the present invention includes a brush roller having a brush held in contact with the surface of a body to be cleaned. The brush contacts the surface of the body to be cleaned due to the weight of the brush roller and rotates by following the movement of the above surface. A flicker is held in contact with the brush in order to remove toner deposited on the brush. A casing forms a chamber therein for storing the toner removed by the flicker. The brush roller maintains an expected cleaning ability even when impurities deposited on the brush absorb moisture in a high-humidity environment and cannot be easily removed or when a great amount of toner deposits on the brush at a time.

16 Claims, 9 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Draw
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☐ 7. Document ID: US 6470161 B2, EP 1143304 A2, CN 1317726 A, JP 2001350321 A, US 20010053298 A1, JP 2002014519 A      Relevance Rank: 68

L10: Entry 7 of 7

File: DWPI

Oct 22, 2002

DERWENT-ACC-NO: 2002-124011

DERWENT-WEEK: 200273

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TITLE: Image forming apparatus such as copier, printer, maintains preset gap between effective charge width portion of charging roller and surface of photosensitive drum

INVENTOR: FUJISHIRO, T; HIRAMATSU, M ; ISHIBASHI, H ; IWASAKI, Y ; SATO, M ; YOSINAGA, H

PATENT-ASSIGNEE: RICOH KK (RICO)

PRIORITY-DATA: 2000JP-0130049 (April 28, 2000), 2000JP-0106146 (April 7, 2000), 2001JP-0102941 (April 2, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 6470161 B2</u>	October 22, 2002		000	G03G015/00
<u>EP 1143304 A2</u>	October 10, 2001	E	035	G03G015/02
<u>CN 1317726 A</u>	October 17, 2001		000	G03G015/02
<u>JP 2001350321 A</u>	December 21, 2001		015	G03G015/02
<u>US 20010053298 A1</u>	December 20, 2001		000	G03G015/00
<u>JP 2002014519 A</u>	January 18, 2002		011	G03G015/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 6470161B2	April 6, 2001	2001US-0826813	
EP 1143304A2	April 6, 2001	2001EP-0107836	
CN 1317726A	April 9, 2001	2001CN-0116267	
JP2001350321A	April 2, 2001	2001JP-0102941	
US20010053298A1	April 6, 2001	2001US-0826813	
JP2002014519A	April 12, 2001	2001JP-0113916	

INT-CL (IPC): G03 G 15/00; G03 G 15/02; G03 G 15/08; G03 G 15/16; G03 G 21/10

ABSTRACTED-PUB-NO: EP 1143304A

BASIC-ABSTRACT:

NOVELTY - A charging roller (14) charges photosensitive layer coated portion (61) of a photosensitive drum (5). A gap controller is arranged in contact with the non-charged area of the coated portion, so that a preset gap (G) is maintained between the effective charge width portion of the charging roller and drum surface.

USE - Image forming apparatus with photosensitive drum's electrification performance degradation prevention function, such as copier, color printer, facsimile, etc.

ADVANTAGE - Maintains satisfactory charge performance for long period of time and prevents toner contamination, thereby maintaining high image quality for long period. Prevents turn over of the cleaning blade, since cleaning blade is not in sliding contact with joint of the coated and non-coated portion of the photosensitive drum.

DESCRIPTION OF DRAWING(S) - The figure shows the schematic view of image forming apparatus.

Photosensitive drum 5

Charging roller 14

Photosensitive layer coated portion 61

Gap G

ABSTRACTED-PUB-NO: US20010053298A

EQUIVALENT-ABSTRACTS:

NOVELTY - A charging roller (14) charges photosensitive layer coated portion (61) of a photosensitive drum (5). A gap controller is arranged in contact with the non-charged area of the coated portion, so that a preset gap (G) is maintained between the effective charge width portion of the charging roller and drum surface.

USE - Image forming apparatus with photosensitive drum's electrification performance degradation prevention function, such as copier, color printer, facsimile, etc.

ADVANTAGE - Maintains satisfactory charge performance for long period of time and prevents toner contamination, thereby maintaining high image quality for long period. Prevents turn over of the cleaning blade, since cleaning blade is not in sliding contact with joint of the coated and non-coated portion of the photosensitive drum.

DESCRIPTION OF DRAWING(S) - The figure shows the schematic view of image forming apparatus.

Photosensitive drum 5

Charging roller 14

Photosensitive layer coated portion 61

Gap G



CHOSEN-DRAWING: Dwg.1/22

DERWENT-CLASS: P84 S06 T04 W02

EPI-CODES: S06-A02; S06-A19; T04-G04; T04-L05; W02-J02B2; W02-J05;

Full	Title	Citation	Print	Review	Classification	Date	Reference		Claims	DOC	Draw D
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Term	Documents
"6470161"	7
6470161S	0
("6470161" AND 5) .PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	7
(L5 AND 6470161) .PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	7

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Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1. Document ID: US 6898407 B2      Relevance Rank: 72

Using default format because multiple data bases are involved.

L10: Entry 2 of 7

File: USPT

May 24, 2005

US-PAT-NO: 6898407

DOCUMENT-IDENTIFIER: US 6898407 B2

TITLE: Desktop color image forming apparatus and method of making the same

DATE-ISSUED: May 24, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Noguchi; Yuusuke	Kanagawa-ken			JP
Ema; Hiromichi	Tokyo			JP
Ishii; Hiroshi	Kanagawa-ken			JP
Fukuchi; Yutaka	Kanagawa-ken			JP
Kuma; Kazuosa	Kanagawa-ken			JP
Suzuki; Kazuki	Saitama-ken			JP
Kikura; Makoto	Kanagawa-ken			JP
Sato; Masumi	Kanagawa-ken			JP
Shijo; Hiroyasu	Tokyo			JP
Nakahara; Tomotoshi	Kanagawa-ken			JP
Yasui; Motokazu	Kanagawa-ken			JP

US-CL-CURRENT: 399/302; 399/308

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	RMK	Draw D.
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☐ 2. Document ID: US 7010246 B2      Relevance Rank: 72

L10: Entry 1 of 7

File: USPT

Mar 7, 2006

US-PAT-NO: 7010246

DOCUMENT-IDENTIFIER: US 7010246 B2

TITLE: Image forming apparatus, drum unit, image forming module, and method of insertion and removal of a damper into and from an image carrier drum

DATE-ISSUED: March 7, 2006

PRIOR-PUBLICATION:

DOC-ID	DATE
US 20040042822 A1	March 4, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fujishiro; Takatsugu	Tokyo			JP
Suda; Takeo	Tokyo			JP
Zemba; Hideki	Tokyo			JP
Murayama; Hisao	Tokyo			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/456583 [PALM]  
DATE FILED: June 9, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-169218	June 10, 2002
JP	2002-170655	June 11, 2002
JP	2002-181552	June 21, 2002
JP	2002-195224	July 3, 2002
JP	2003-113709	April 18, 2003

INT-CL-ISSUED:

TYPE	IPC	DATE	IPC-OLD
IPCP	G03G15/00	20060101	G03G015/00

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	<u>G03 G 15/00</u>	20060101

US-CL-ISSUED: 399/159; 399/109, 399/116, 464/180  
US-CL-CURRENT: 399/159; 399/109, 399/116, 464/180

FIELD-OF-CLASSIFICATION-SEARCH: 399/159, 399/116, 399/117, 399/109, 399/107,  
399/110, 29/895, 29/895.1, 29/402.03, 464/179, 464/180, 464/182, 492/18, 492/47  
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5357231</u>	October 1994	Miwa et al.	399/159 X

<u>6010407</u>	January 2000	Ishikawa	464/180 X
<u>6055394</u>	April 2000	Suda et al.	399/107
<u>6070030</u>	May 2000	Fujishiro	399/111
<u>6085062</u>	July 2000	Mizuishi et al.	399/358
<u>6101351</u>	August 2000	Suda et al.	399/114
<u>6131003</u>	October 2000	Cais et al.	399/159 X
<u>6144811</u>	November 2000	Ohori et al.	399/9
<u>6144822</u>	November 2000	Yamaguchi et al.	399/121
<u>6148161</u>	November 2000	Usui et al.	399/58
<u>6256465</u>	July 2001	Yoshinaga et al.	399/103
<u>6266501</u>	July 2001	Mizuishi et al.	399/106
<u>6295438</u>	September 2001	Fujishiro et al.	399/346
<u>6336013</u>	January 2002	Suda et al.	399/103
<u>6463237</u>	October 2002	Suda et al.	399/176
<u>6470161</u>	October 2002	Fujishiro et al.	399/159
<u>6507720</u>	January 2003	Kabumoto et al.	399/258
<u>6546219</u>	April 2003	Sato et al.	399/176
<u>6560414</u>	May 2003	Suda et al.	399/12
<u>6567643</u>	May 2003	Yasui et al.	399/391
<u>6591077</u>	July 2003	Yanagisawa et al.	399/258
<u>6608981</u>	August 2003	Mae	399/116
<u>6782224</u>	August 2004	Kim	399/159
<u>2001/0012458</u>	August 2001	Fritz et al.	399/159 X
<u>2001/0020761</u>	September 2001	Hasegawa	267/141
<u>2002/0186985</u>	December 2002	Fujishiro	399/159 X

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
0 896 258	February 1999	EP	
1 260 875	November 2002	EP	
5-35167	February 1993	JP	
05-188840	July 1993	JP	
06-264970	September 1994	JP	
7-72641	March 1995	JP	
08-146824	June 1996	JP	
10-97158	April 1998	JP	
11-184308	July 1999	JP	
2000-321929	November 2000	JP	
2001-209236	August 2001	JP	
2003-066770	March 2003	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Chen; Sophia S.

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier &amp; Neustadt, P.C.

## ABSTRACT:

An image forming apparatus includes a photoreceptor belt formed by either a belt or a thin-walled cylinder. A charging unit that sets bias characteristics of the photoreceptor belt has an arrangement to approach towards the photoreceptor belt. A damper is provided on a side of the photoreceptor belt opposite to the side facing the charging unit. The damper absorbs vibrations in the photoreceptor belt through a supporting plate.

14 Claims, 47 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	Pub	Draw
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☐ 3. Document ID: US 6470161 B2      Relevance Rank: 69

L10: Entry 6 of 7

File: USPT

Oct 22, 2002

US-PAT-NO: 6470161

DOCUMENT-IDENTIFIER: US 6470161 B2

TITLE: Apparatus for minimizing toner contamination on an image formation member

DATE-ISSUED: October 22, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fujishiro; Takatsugu	Tokyo			JP
Hiramatsu; Masami	Yokohama			JP
Sato; Masumi	Yokohama			JP
Ishibashi; Hitoshi	Kamakura			JP
Yosinaga; Hiroshi	Ichikawa			JP
Iwasaki; Yukiko	Yokohama			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 09/826813    [PALM]

DATE FILED: April 6, 2001

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2000-106146	April 7, 2000
JP	2000-130049	April 28, 2000

INT-CL-ISSUED: {07} G03 G 15/00, G03 G 15/02

US-CL-ISSUED: 399/159; 399/115, 399/174, 399/176

US-CL-CURRENT: 399/159; 399/115, 399/174, 399/176

FIELD-OF-CLASSIFICATION-SEARCH: 399/115, 399/159, 399/160, 399/174, 399/175, 399/176

See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5799229</u>	August 1998	Yokoyama et al.	399/100
<u>5946529</u>	August 1999	Sato et al.	
<u>6088551</u>	July 2000	Satoh et al.	

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
3-240076	October 1991	JP	
4-360167	December 1992	JP	
6-230650	August 1994	JP	
7-121002	May 1995	JP	
9-26685	January 1997	JP	
9-138623	May 1997	JP	
10-340028	December 1998	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

ABSTRACT:

To prevent deterioration of charge performance, which is caused by wear of a gap control member that keeps a charge roller into non-contact with the image carrier, the charge roller is brought into contact with a surface of a photosensitive drum via a pair of tape members as the gap control member that contacts with a coat and non-charge portion of the photosensitive drum. A gap G can be formed between an effective charge width portion of the charge roller and the surface of the photosensitive drum.

26 Claims, 22 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Review
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☐ 4. Document ID: US 6807390 B2 Relevance Rank: 68

L10: Entry 4 of 7

File: USPT

Oct 19, 2004

US-PAT-NO: 6807390

DOCUMENT-IDENTIFIER: US 6807390 B2

TITLE: Image forming apparatus

DATE-ISSUED: October 19, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Suda; Takeo	Tokyo			JP
Kawahara; Shinichi	Tokyo			JP
Kawasumi; Masanori	Tokyo			JP
Amemiya; Ken	Tokyo			JP
Ono; Hiroshi	Tokyo			JP
Mizusawa; Hiroshi	Tokyo			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/405630 [PALM]

DATE FILED: April 3, 2003

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-110248	April 12, 2002

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/100

US-CL-CURRENT: 399/100

FIELD-OF-CLASSIFICATION-SEARCH: 399/100, 399/168, 399/174, 399/175, 399/176, 399/299, 399/302, 399/303

See application file for complete search history.

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5842081</u>	November 1998	Kaname et al.	
<u>5950062</u>	September 1999	Yahata et al.	
<u>6055388</u>	April 2000	Watanabe et al.	
<u>6055394</u>	April 2000	Suda et al.	
<u>6085062</u>	July 2000	Mizuishi et al.	
<u>6101351</u>	August 2000	Suda et al.	
<u>6128449</u>	October 2000	Zenba et al.	

<u>6144811</u>	November 2000	Ohori et al.	
<u>6144822</u>	November 2000	Yamaguchi et al.	
<u>6148161</u>	November 2000	Usui et al.	
<u>6160969</u>	December 2000	Ishigaki et al.	
<u>6256465</u>	July 2001	Yoshinaga et al.	
<u>6266501</u>	July 2001	Mizuishi et al.	
<u>6336013</u>	January 2002	Suda et al.	
<u>6337957</u>	January 2002	Tamaki et al.	
<u>6463237</u>	October 2002	Suda et al.	
<u>6470161</u>	October 2002	Fujishiro et al.	399/159
<u>6522855</u>	February 2003	Katoh et al.	
<u>6560414</u>	May 2003	Suda et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
1 193 568	April 2002	EP	
1 229 399	August 2002	EP	
8-62949	March 1996	JP	
08-123140	May 1996	JP	
10-282854	October 1998	JP	
11-288150	October 1999	JP	
2000-221756	August 2000	JP	
2002-196568	July 2002	JP	
2002-221883	August 2002	JP	

## OTHER PUBLICATIONS

Patent Abstracts of Japan, JP 59-218479, Dec. 8, 1984.  
Patent Abstracts of Japan, JP 2002-108069, Apr. 10, 2002.

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

## ABSTRACT:

An image forming apparatus includes a plurality of photoreceptors and an intermediated transfer body through which toner images on the photoreceptors are transferred to a recording medium. The image forming apparatus also includes charging members provided in contact with or adjacent to the respective photoreceptors, and further includes at least one cleaning unit that contacts the charging member and removes foreign substance from the surface of the charging member.

10 Claims, 4 Drawing figures



Full	Title	Citation	Front	Review	Classification	Gate	Reference			Claims	EMC	Draw D.
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☐ 5. Document ID: US 6823149 B2 Relevance Rank: 68

L10: Entry 3 of 7

File: USPT

Nov 23, 2004

US-PAT-NO: 6823149

DOCUMENT-IDENTIFIER: US 6823149 B2

TITLE: Image forming apparatus with variable speed transferring and fixing devices

DATE-ISSUED: November 23, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yoshikawa; Takahiro	Kanagawa			JP
Maruta; Takayuki	Kanagawa			JP
Ishibashi; Hitoshi	Kanagawa			JP
Sawai; Yuuji	Kanagawa			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/373050 [PALM]

DATE FILED: February 26, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-054245	February 28, 2002

INT-CL-ISSUED: [07] G03 G 15/20

US-CL-ISSUED: 399/68; 399/400

US-CL-CURRENT: 399/68; 399/400

FIELD-OF-CLASSIFICATION-SEARCH: 399/68, 399/397, 399/400, 399/396, 399/16  
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4595279</u>	June 1986	Kuru et al.	
<u>4928141</u>	May 1990	Poehlein et al.	399/68
<u>4931842</u>	June 1990	Mahoney	399/400
<u>5669039</u>	September 1997	Ohtsuka et al.	399/68

<u>5850588</u>	December 1998	Yoshikawa
<u>5881334</u>	March 1999	Maruta et al.
<u>6055386</u>	April 2000	Kato et al.
<u>6160569</u>	December 2000	Fujimori et al.
<u>6160974</u>	December 2000	Yoshikawa et al.
<u>6226481</u>	May 2001	Yoneda et al.
<u>6301452</u>	October 2001	Yoshizawa
<u>6360065</u>	March 2002	Ishibashi et al.
<u>6405002</u>	June 2002	Ogiyama et al.
<u>6470161</u>	October 2002	Fujishiro et al.
<u>6501914</u>	December 2002	Yoshikawa
<u>6505022</u>	January 2003	Kosuge et al.
<u>6516179</u>	February 2003	Sawai et al.
<u>6519428</u>	February 2003	Ohtoshi et al.
<u>6535707</u>	March 2003	Maruta et al.
<u>6546219</u>	April 2003	Sato et al.

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
61059368	March 1986	JP	
07-140845	June 1995	JP	
10039558	February 1998	JP	
2915510	April 1999	JP	
11119573	April 1999	JP	
2001312193	November 2001	JP	
2001-354337	December 2001	JP	

## OTHER PUBLICATIONS

U.S. patent application Ser. No. 10/740,672, Kamiya, filed Dec. 22, 2003.  
 U.S. patent application Ser. No. 10/798,382, Ishibashi, filed Mar. 12, 2004.  
 U.S. patent application Ser. No. 10/746,060, Enoki et al., filed Dec. 29, 2003.  
 U.S. patent application Ser. No. 10/722,490, Ishibashi et al., filed Nov. 28, 2003.

U.S. patent application Ser. No. 10/700,486, Yoshida et al., filed Nov. 5, 2003.  
 U.S. patent application Ser. No. 09/758,192, Sato et al., filed Jan. 12, 2001.  
 U.S. patent application Ser. No. 09/764,261, Yoshikawa, filed Jan. 19, 2001.  
 U.S. patent application Ser. No. 09/947,391, Kawagoe et al., filed Sep. 7, 2001.  
 U.S. patent application Ser. No. 09/960,922, Aoki et al., filed Sep. 25, 2001.  
 U.S. patent application Ser. No. 10/114,265, Maruta et al., filed Apr. 3, 2002.  
 U.S. patent application Ser. No. 10/178,685, Sugino et al., filed Jun. 25, 2002.  
 U.S. patent application Ser. No. 10/193,219, Takahashi et al., filed Jul. 12, 2002.

U.S. patent application Ser. No. 10/193,240, Sawai, filed Jul. 12, 2002.  
 U.S. patent application Ser. No. 10/200,178, Tamiya et al., filed Jul. 23, 2002.  
 U.S. patent application Ser. No. 10/214,595, Sakamoto, filed Aug. 9, 2002.

ART-UNIT: 2852

PRIMARY-EXAMINER: Lee; Susan

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

ABSTRACT:

An image forming apparatus of the present invention includes an intermediate image transfer belt to which a toner image is to be transferred from an image carrier, an image transferring device for transferring the toner image from the intermediate image transfer belt to a sheet, and a fixing device for fixing the toner image on the sheet. When the length of the sheet in the direction of conveyance is smaller than a distance between the image transferring device and the fixing device, a matching circuit varies only the speeds of the image transferring device and fixing device, but does not vary the speed of a device that executes a step preceding the image transfer step. The matching device then sets an interval between consecutive sheets matching with the varied speeds of the image transferring device and fixing device, thereby matching opposite sides with respect to the image transfer step to each other as to the number of sheets to be conveyed.

5 Claims, 7 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	IMAC	Draw P
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☐ 6. Document ID: US 6757505 B2      Relevance Rank: 68

L10: Entry 5 of 7

File: USPT

Jun 29, 2004

US-PAT-NO: 6757505

DOCUMENT-IDENTIFIER: US 6757505 B2

TITLE: Image forming apparatus and cleaning device therefor

DATE-ISSUED: June 29, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Amemiya; Ken	Tokyo			JP
Iwasaki; Yukiko	Yokohama			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/233530      [PALM]

DATE FILED: September 4, 2002

PARENT-CASE:

The present application is a continuation-in-part of copending U.S. patent application Ser. No. 10/053,542, filed Jan. 24, 2002.

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2001-017150	January 25, 2001
JP	2001-268095	September 4, 2001

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/100; 399/123, 399/343, 399/353, 399/357

US-CL-CURRENT: 399/100; 399/123, 399/343, 399/353, 399/357

FIELD-OF-CLASSIFICATION-SEARCH: 15/1.51, 15/256.5, 15/256.51, 15/256.52, 399/100, 399/123, 399/343, 399/345, 399/347, 399/352, 399/353, 399/357, 399/358, 399/359, 399/360

See application file for complete search history.

PRIOR-ART-DISCLOSED:

#### U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5689791</u>	November 1997	Swift	399/353
<u>6470161</u>	October 2002	Fujishiro et al.	

#### FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
8-022173	January 1996	JP	
10-020696	January 1998	JP	
10-282854	October 1998	JP	
11-219048	August 1999	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

#### ABSTRACT:

A cleaning device of the present invention includes a brush roller having a brush held in contact with the surface of a body to be cleaned. The brush contacts the surface of the body to be cleaned due to the weight of the brush roller and rotates by following the movement of the above surface. A flicker is held in contact with the brush in order to remove toner deposited on the brush. A casing forms a chamber therein for storing the toner removed by the flicker. The brush roller maintains an expected cleaning ability even when impurities deposited on the brush absorb moisture in a high-humidity environment and cannot be easily removed or when a great amount of toner deposits on the brush at a time.

16 Claims, 9 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	DOC	Draw
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☐ 7. Document ID: US 6470161 B2, EP 1143304 A2, CN 1317726 A, JP 2001350321 A,  
US 20010053298 A1, JP 2002014519 A Relevance Rank: 68

L10: Entry 7 of 7

File: DWPI

Oct 22, 2002

DERWENT-ACC-NO: 2002-124011

DERWENT-WEEK: 200273

COPYRIGHT 2006 DERWENT INFORMATION LTD

TITLE: Image forming apparatus such as copier, printer, maintains preset gap between effective charge width portion of charging roller and surface of photosensitive drum

INVENTOR: FUJISHIRO, T; HIRAMATSU, M ; ISHIBASHI, H ; IWASAKI, Y ; SATO, M ; YOSINAGA, H

PATENT-ASSIGNEE: RICOH KK (RICO)

PRIORITY-DATA: 2000JP-0130049 (April 28, 2000), 2000JP-0106146 (April 7, 2000), 2001JP-0102941 (April 2, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 6470161 B2</u>	October 22, 2002		000	G03G015/00
<u>EP 1143304 A2</u>	October 10, 2001	E	035	G03G015/02
<u>CN 1317726 A</u>	October 17, 2001		000	G03G015/02
<u>JP 2001350321 A</u>	December 21, 2001		015	G03G015/02
<u>US 20010053298 A1</u>	December 20, 2001		000	G03G015/00
<u>JP 2002014519 A</u>	January 18, 2002		011	G03G015/02

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 6470161B2	April 6, 2001	2001US-0826813	
EP 1143304A2	April 6, 2001	2001EP-0107836	
CN 1317726A	April 9, 2001	2001CN-0116267	
JP2001350321A	April 2, 2001	2001JP-0102941	
US20010053298A1	April 6, 2001	2001US-0826813	
JP2002014519A	April 12, 2001	2001JP-0113916	

INT-CL (IPC): G03 G 15/00; G03 G 15/02; G03 G 15/08; G03 G 15/16; G03 G 21/10

ABSTRACTED-PUB-NO: EP 1143304A

BASIC-ABSTRACT:

NOVELTY - A charging roller (14) charges photosensitive layer coated portion (61) of a photosensitive drum (5). A gap controller is arranged in contact with the non-charged area of the coated portion, so that a preset gap (G) is maintained between the effective charge width portion of the charging roller and drum surface.

USE - Image forming apparatus with photosensitive drum's electrification performance degradation prevention function, such as copier, color printer, facsimile, etc.

ADVANTAGE - Maintains satisfactory charge performance for long period of time and prevents toner contamination, thereby maintaining high image quality for long period. Prevents turn over of the cleaning blade, since cleaning blade is not in sliding contact with joint of the coated and non-coated portion of the photosensitive drum.

DESCRIPTION OF DRAWING(S) - The figure shows the schematic view of image forming apparatus.

Photosensitive drum 5

Charging roller 14

Photosensitive layer coated portion 61

Gap G

ABSTRACTED-PUB-NO: US20010053298A

EQUIVALENT-ABSTRACTS:

NOVELTY - A charging roller (14) charges photosensitive layer coated portion (61) of a photosensitive drum (5). A gap controller is arranged in contact with the non-charged area of the coated portion, so that a preset gap (G) is maintained between the effective charge width portion of the charging roller and drum surface.

USE - Image forming apparatus with photosensitive drum's electrification performance degradation prevention function, such as copier, color printer, facsimile, etc.

ADVANTAGE - Maintains satisfactory charge performance for long period of time and prevents toner contamination, thereby maintaining high image quality for long period. Prevents turn over of the cleaning blade, since cleaning blade is not in sliding contact with joint of the coated and non-coated portion of the photosensitive drum.

DESCRIPTION OF DRAWING(S) - The figure shows the schematic view of image forming apparatus.

Photosensitive drum 5

Charging roller 14

Photosensitive layer coated portion 61

Gap G

CHOSEN-DRAWING: Dwg.1/22

DERWENT-CLASS: P84 S06 T04 W02

EPI-CODES: S06-A02; S06-A19; T04-G04; T04-L05; W02-J02B2; W02-J05;

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	FIG	Draw
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[Clear](#)[Generate Collection](#)[Print](#)[Fwd Refs](#)[Bkwd Refs](#)[Generate OACS](#)

Term	Documents
"6470161"	7
6470161S	0
("6470161" AND 5) .PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	7
(L5 AND 6470161) .PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	7

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## Hit List

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Search Results - Record(s) 1 through 2 of 2 returned.

- ☐ 1. Document ID: US 6505022 B2 Relevance Rank: 58

Using default format because multiple data bases are involved.

L14: Entry 2 of 2

File: USPT

Jan 7, 2003

US-PAT-NO: 6505022

DOCUMENT-IDENTIFIER: US 6505022 B2

TITLE: Image forming apparatus having protective layer on the surface of image bearing member to avoid adhesion of film of additives to image bearing member

DATE-ISSUED: January 7, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kosuge; Akio	Yokohama			JP
Sato; Masumi	Yokohama			JP
Ishibashi; Hitoshi	Tokyo			JP
Yoshinaga; Hiroshi	Ichikawa			JP
Iwasaki; Yukiko	Yokohama			JP

US-CL-CURRENT: 399/159; 222/DIG.1, 399/120, 399/258, 399/359, 399/99

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	WAC	Draw D
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- ☐ 2. Document ID: US 6961529 B2 Relevance Rank: 56

L14: Entry 1 of 2

File: USPT

Nov 1, 2005

US-PAT-NO: 6961529

DOCUMENT-IDENTIFIER: US 6961529 B2

TITLE: Charging device using a charge roller and image forming apparatus including the same

DATE-ISSUED: November 1, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kosuge; Akio	Kanagawa			JP



## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/661569 [PALM]  
DATE FILED: September 15, 2003

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-267795	September 13, 2002
JP	2002-309554	October 24, 2002
JP	2002-365346	December 17, 2002
JP	2002-365361	December 17, 2002

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/176; 361/221, 399/100, 399/115  
US-CL-CURRENT: 399/176; 361/221, 399/100, 399/115

FIELD-OF-CLASSIFICATION-SEARCH: 399/115, 399/168, 399/174, 399/176, 399/159,  
399/303, 399/313, 399/100, 430/902, 361/221  
See application file for complete search history.

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>6122468</u>	September 2000	Sakamoto et al.	399/323
<u>6249304</u>	June 2001	Sawayama et al.	347/228
<u>6505022</u>	January 2003	Kosuge et al.	399/159
<u>6560438</u>	May 2003	Kosuge	399/350
<u>6567637</u>	May 2003	Yanagisawa et al.	399/258
<u>6576388</u>	June 2003	Sakon et al.	430/67
<u>2001/0012460</u>	August 2001	Sato et al.	399/176
<u>2002/0051654</u>	May 2002	Niimi et al.	399/159
<u>2002/0110387</u>	August 2002	Fujishiro	399/159
<u>2003/0175046</u>	September 2003	Namiki et al.	399/176

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
07-209959	August 1995	JP	
2001-194868	July 2001	JP	
2001-337515	December 2001	JP	
2002-55508	February 2002	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Chen; Sophia S.

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier &amp; Neustadt, P.C.

## ABSTRACT:

An image forming apparatus of the present invention includes a charging device including a charge roller formed with annular grooves at opposite end portions thereof and configured to charge an image carrier. Annular gap forming members each are fitted in the annular grooves for forming a gap between the charge roller and the image carrier. The gap forming members each have an area of  $1.0 \times 10^{-6}$  to  $3.0 \times 10^{-6}$  m<sup>2</sup> in a section containing the axis of the charge roller.

13 Claims, 29 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Term	Documents
"6505022"	15
6505022S	0
("6505022" AND 11).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2
(L11 AND 6505022).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2

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Search Results - Record(s) 1 through 5 of 5 returned.

☐ 1. Document ID: US 7010246 B2 Relevance Rank: 58

Using default format because multiple data bases are involved.

L13: Entry 1 of 5

File: USPT

Mar 7, 2006

US-PAT-NO: 7010246

DOCUMENT-IDENTIFIER: US 7010246 B2

TITLE: Image forming apparatus, drum unit, image forming module, and method of insertion and removal of a damper into and from an image carrier drum

DATE-ISSUED: March 7, 2006

PRIOR-PUBLICATION:

DOC-ID

DATE

US 20040042822 A1

March 4, 2004

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Fujishiro; Takatsugu

Tokyo

JP

Suda; Takeo

Tokyo

JP

Zemba; Hideki

Tokyo

JP

Murayama; Hisao

Tokyo

JP

US-CL-CURRENT: 399/159; 399/109, 399/116, 464/180

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Drawings
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☐ 2. Document ID: US 6898407 B2 Relevance Rank: 58

L13: Entry 2 of 5

File: USPT

May 24, 2005

US-PAT-NO: 6898407

DOCUMENT-IDENTIFIER: US 6898407 B2

TITLE: Desktop color image forming apparatus and method of making the same

DATE-ISSUED: May 24, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Noguchi; Yuusuke	Kanagawa-ken			JP
Ema; Hiromichi	Tokyo			JP
Ishii; Hiroshi	Kanagawa-ken			JP
Fukuchi; Yutaka	Kanagawa-ken			JP
Kuma; Kazuosa	Kanagawa-ken			JP
Suzuki; Kazuki	Saitama-ken			JP
Kikura; Makoto	Kanagawa-ken			JP
Sato; Masumi	Kanagawa-ken			JP
Shijo; Hiroyasu	Tokyo			JP
Nakahara; Tomotoshi	Kanagawa-ken			JP
Yasui; Motokazu	Kanagawa-ken			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/660571 [PALM]  
 DATE FILED: September 12, 2003

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-266629	September 12, 2002

INT-CL-ISSUED: [07] G03 G 15/01

US-CL-ISSUED: 399/302; 399/308  
 US-CL-CURRENT: 399/302; 399/308

FIELD-OF-CLASSIFICATION-SEARCH: 399/107, 399/297, 399/298, 399/299, 399/302, 399/306, 399/308  
 See application file for complete search history.

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5508789</u>	April 1996	Castelli et al.	
<u>6470161</u>	October 2002	Fujishiro et al.	
<u>6493532</u>	December 2002	Nakahara et al.	
<u>6501913</u>	December 2002	Hattori et al.	
<u>6507720</u>	January 2003	Kabumoto et al.	
<u>6546219</u>	April 2003	Sato et al.	
<u>6567643</u>	May 2003	Yasui et al.	
<u>6591077</u>	July 2003	Yanagisawa et al.	
<u>6628908</u>	September 2003	Matsumoto et al.	
<u>6628916</u>	September 2003	Yasui et al.	
<u>6636709</u>	October 2003	Furukawa et al.	

<u>6647223</u>	November 2003	Ishii	
<u>2001/0055499</u>	December 2001	Sato	
<u>2002/0080219</u>	June 2002	Yamaguchi et al.	
<u>2003/0235440</u>	December 2003	Takada	399/302
<u>2004/0228664</u>	November 2004	Yamada	399/302

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
1 098 228	May 2001	EP	
11-95519	April 1999	JP	
2000-264492	September 2000	JP	
2001-265096	September 2001	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Tran; Hoan

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier &amp; Neustadt, P.C.

## ABSTRACT:

The present invention relates to an electrophotographic color image forming apparatus using a tandem-drum development, an indirect image-transfer method, and a vertical sheet supply path. An intermediate image-transfer member is angled relative to a horizontal line such that a rear side of the intermediate image-transfer member away from a recording sheet is lifted and a front side of the intermediate image-transfer member closer to the recording sheet is lowered. Further, image creating mechanisms of the tandem-drum development are aligned and arranged in parallel to a moving image transfer bed of the intermediate image-transfer member, such that one of the image creating mechanisms firstly forming an image faces the rear side of the moving image transfer bed and another one of the image creating mechanisms lastly forming an image faces the front side.

56 Claims, 17 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	EMC	Drawings
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☐ 3. Document ID: US 6470161 B2 Relevance Rank: 56

L13: Entry 5 of 5

File: USPT

Oct 22, 2002

US-PAT-NO: 6470161DOCUMENT-IDENTIFIER: US 6470161 B2

TITLE: Apparatus for minimizing toner contamination on an image formation member

DATE-ISSUED: October 22, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fujishiro; Takatsugu	Tokyo			JP
Hiramatsu; Masami	Yokohama			JP
Sato; Masumi	Yokohama			JP
Ishibashi; Hitoshi	Kamakura			JP
Yosinaga; Hiroshi	Ichikawa			JP
Iwasaki; Yukiko	Yokohama			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 09/826813 [PALM]

DATE FILED: April 6, 2001

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2000-106146	April 7, 2000
JP	2000-130049	April 28, 2000

INT-CL-ISSUED: [07] G03 G 15/00, G03 G 15/02

US-CL-ISSUED: 399/159; 399/115, 399/174, 399/176

US-CL-CURRENT: 399/159; 399/115, 399/174, 399/176

FIELD-OF-CLASSIFICATION-SEARCH: 399/115, 399/159, 399/160, 399/174, 399/175, 399/176

See application file for complete search history.

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5799229</u>	August 1998	Yokoyama et al.	399/100
<u>5946529</u>	August 1999	Sato et al.	
<u>6088551</u>	July 2000	Satoh et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
3-240076	October 1991	JP	
4-360167	December 1992	JP	
6-230650	August 1994	JP	
7-121002	May 1995	JP	
9-26685	January 1997	JP	
9-138623	May 1997	JP	
10-340028	December 1998	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier &amp; Neustadt, P.C.

## ABSTRACT:

To prevent deterioration of charge performance, which is caused by wear of a gap control member that keeps a charge roller into non-contact with the image carrier, the charge roller is brought into contact with a surface of a photosensitive drum via a pair of tape members as the gap control member that contacts with a coat and non-charge portion of the photosensitive drum. A gap G can be formed between an effective charge width portion of the charge roller and the surface of the photosensitive drum.

26 Claims, 22 Drawing figures

Full	Title	Status	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D
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☐ 4. Document ID: US 6807390 B2      Relevance Rank: 55

L13: Entry 3 of 5

File: USPT

Oct 19, 2004

US-PAT-NO: 6807390

DOCUMENT-IDENTIFIER: US 6807390 B2

TITLE: Image forming apparatus

DATE-ISSUED: October 19, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Suda; Takeo	Tokyo			JP
Kawahara; Shinichi	Tokyo			JP
Kawasumi; Masanori	Tokyo			JP
Amemiya; Ken	Tokyo			JP
Ono; Hiroshi	Tokyo			JP
Mizusawa; Hiroshi	Tokyo			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/405630    [PALM]

DATE FILED: April 3, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2002-110248	April 12, 2002

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/100

US-CL-CURRENT: 399/100

FIELD-OF-CLASSIFICATION-SEARCH: 399/100, 399/168, 399/174, 399/175, 399/176, 399/299, 399/302, 399/303

See application file for complete search history.

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5842081</u>	November 1998	Kaname et al.	
<u>5950062</u>	September 1999	Yahata et al.	
<u>6055388</u>	April 2000	Watanabe et al.	
<u>6055394</u>	April 2000	Suda et al.	
<u>6085062</u>	July 2000	Mizuishi et al.	
<u>6101351</u>	August 2000	Suda et al.	
<u>6128449</u>	October 2000	Zenba et al.	
<u>6144811</u>	November 2000	Ohuri et al.	
<u>6144822</u>	November 2000	Yamaguchi et al.	
<u>6148161</u>	November 2000	Usui et al.	
<u>6160969</u>	December 2000	Ishigaki et al.	
<u>6256465</u>	July 2001	Yoshinaga et al.	
<u>6266501</u>	July 2001	Mizuishi et al.	
<u>6336013</u>	January 2002	Suda et al.	
<u>6337957</u>	January 2002	Tamaki et al.	
<u>6463237</u>	October 2002	Suda et al.	
<u>6470161</u>	October 2002	Fujishiro et al.	399/159
<u>6522855</u>	February 2003	Katoh et al.	
<u>6560414</u>	May 2003	Suda et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
1 193 568	April 2002	EP	
1 229 399	August 2002	EP	
8-62949	March 1996	JP	
08-123140	May 1996	JP	
10-282854	October 1998	JP	
11-288150	October 1999	JP	
2000-221756	August 2000	JP	
2002-196568	July 2002	JP	



2002-221883

August 2002

JP

## OTHER PUBLICATIONS

Patent Abstracts of Japan, JP 59-218479, Dec. 8, 1984.

Patent Abstracts of Japan, JP 2002-108069, Apr. 10, 2002.

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier &amp; Neustadt, P.C.

## ABSTRACT:

An image forming apparatus includes a plurality of photoreceptors and an intermediated transfer body through which toner images on the photoreceptors are transferred to a recording medium. The image forming apparatus also includes charging members provided in contact with or adjacent to the respective photoreceptors, and further includes at least one cleaning unit that contacts the charging member and removes foreign substance from the surface of the charging member.

10 Claims, 4 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D.
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☐ 5. Document ID: US 6757505 B2 Relevance Rank: 55

L13: Entry 4 of 5

File: USPT

Jun 29, 2004

US-PAT-NO: 6757505

DOCUMENT-IDENTIFIER: US 6757505 B2

TITLE: Image forming apparatus and cleaning device therefor

DATE-ISSUED: June 29, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Amemiya; Ken	Tokyo			JP
Iwasaki; Yukiko	Yokohama			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Ricoh Company, Ltd.	Tokyo			JP	03

APPL-NO: 10/233530 [PALM]

DATE FILED: September 4, 2002

## PARENT-CASE:

The present application is a continuation-in-part of copending U.S. patent application Ser. No. 10/053,542, filed Jan. 24, 2002.

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2001-017150	January 25, 2001
JP	2001-268095	September 4, 2001

INT-CL-ISSUED: [07] G03 G 15/02

US-CL-ISSUED: 399/100; 399/123, 399/343, 399/353, 399/357

US-CL-CURRENT: 399/100; 399/123, 399/343, 399/353, 399/357

FIELD-OF-CLASSIFICATION-SEARCH: 15/1.51, 15/256.5, 15/256.51, 15/256.52, 399/100, 399/123, 399/343, 399/345, 399/347, 399/352, 399/353, 399/357, 399/358, 399/359, 399/360

See application file for complete search history.

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5689791</u>	November 1997	Swift	399/353
<u>6470161</u>	October 2002	Fujishiro et al.	

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
8-022173	January 1996	JP	
10-020696	January 1998	JP	
10-282854	October 1998	JP	
11-219048	August 1999	JP	

ART-UNIT: 2852

PRIMARY-EXAMINER: Ngo; Hoang

ATTY-AGENT-FIRM: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

## ABSTRACT:

A cleaning device of the present invention includes a brush roller having a brush held in contact with the surface of a body to be cleaned. The brush contacts the surface of the body to be cleaned due to the weight of the brush roller and rotates by following the movement of the above surface. A flicker is held in contact with the brush in order to remove toner deposited on the brush. A casing forms a chamber therein for storing the toner removed by the flicker. The brush roller maintains an expected cleaning ability even when impurities deposited on the brush absorb

moisture in a high-humidity environment and cannot be easily removed or when a great amount of toner deposits on the brush at a time.

16 Claims, 9 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	FIGS	Draw D
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Term	Documents
"6470161"	7
6470161S	0
("6470161" AND 11) .PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD.	5
(L11 AND 6470161) .PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD.	5

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## Case Creation Option

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Q4	(10789382 or 1094950).ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q5	((imag\$4 with form\$4) with (apparatus or machine))	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q6	Q5 and 10943950.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q7	Q5 and 6470161.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q8	6470161.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q9	US6470161.ccls.	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
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Q16	Q11 and 6519428	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q17	Q11 and 6360065	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q18	Q11 and 5623330	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q19	Q11 and 5659843	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T
Q20	Q11 and 5438401	PGPB,USPT,USOC,EPAB,JPAB,DWPI,T

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